

MINITAB Guide

Data Analysis using MINITAB Statistical Software: Introduction and Getting Started with MINITAB®

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BRIEF CONTENT:

LEARNING MINITAB

Objectives and Overview
MINITAB Statistical Software: An Overview
Worksheet (Data Window)
Session Window
History Window
Analyzing Your Data
Graphing Your Data: Scale, Labels, Data View, Multiple Graphs, Data Options
Printing and Saving Your Work
Command Sequence Used In This Text
Preparing Your Report
Changing data from Numeric to Text or Text to Numeric
Editing Your Graphs and Plots
An Interactive Session with MINITAB

CHAPTERS AND APPLICATIONS

Learn the Six Sigma and Quality Applications using this book. The book contains examples with step-wise MINITAB software instructions on:

Graphical and Visual Techniques,
Quality Tools including Pareto Charts,
Cause-and-effect Diagrams, Multi-vari Charts and others,
Calculating Descriptive Statistics and Graphical Summary of Data,
Calculating distributions,
Sampling and Sampling Distributions
Confidence intervals,
Performing hypothesis testing,
Simple and multiple regression analysis and modeling,
Nonparametric tests,

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ANOVA and Design of Experiment tools,
Control Charts, and several other applications

OBJECTIVES AND OVERVIEW

One of the major objectives of this text is to teach the statistical tools used in the Six Sigma DMAIC (Define, Measure, Analyze, Improve, and Control) process. The chapters in this book provide concepts, understanding, and computer applications of Six Sigma DMAIC tools. The statistical tools within the DMAIC process are discussed with step-wise MINITAB computer applications.

All of the analyses and procedures in this book use the MINITAB Windows version (release 16). You may also use MINITAB 16 as most of the instructions for release 17 are still valid for MINITAB 16. Step wise instructions for conducting data analyses are described in detail. Each chapter contains a number of applications with instructions on how to create data files, perform analyses, and interpret results.

If you have never used the MINITAB software, we provide an overview in this chapter that will help you with the basics to get started. We also provide tips on how to access the help screens. Once you understand the basic operations of the software, you should be able to perform useful analyses presented in this text. All of the analysis procedures are clearly explained with stepwise instructions.

The applications in this book cover most of the statistical tools used in Six Sigma. Our aim is to provide you with additional insights. Performing the analyses in this text will help you to understand the concepts better, and you should be able to apply the right tool to solve specific problems. You will also realize the power of the computer in solving both simple and complex problems. Needless to say, the analyses in this text will provide you with hands-on experience using the computer. We believe this to be a valuable experience that will help you in your professional life.

Finally, it is our belief that some of the difficult concepts of quality, statistics and probability can be more easily understood through experimentation; and, the computer as a tool adds a dynamic dimension to the conventional experience.

[\(CLICK TO SEE THE SAMPLES FOR EACH CHAPTER\):](#)

CHAPTERS (CLICK ON EACH CHAPTER TO SEE THE SAMPLES):

Learn the Six Sigma and Quality Applications using the following chapters in this book. The book contains examples with step-wise instructions on using MINITAB® statistical software. The data files for all the examples and exercises are included with the text. (MINITAB® is one of the most widely used statistical software used in Six Sigma).

- Chapter 1: Introduction to MINITAB and Getting Started
(A tutorial is included to learn the software)
- Chapter 2: Graphical and Visual Techniques,
- Chapter 3: Data Analysis and Descriptive Statistics to Summarize the Data
(Graphical Summary of Data)
- Chapter 4: Quality Tools: The Basic Tools and Seven New Tools of Quality
Pareto Charts, Cause-and-effect Diagrams, Multi-vari Charts and others
- Chapter 5: Calculating Distributions: Discrete Distributions and Applications in Six Sigma
- Chapter 6: Calculating Distributions: Continuous Distributions and Applications in Six Sigma
- Chapter 7: Normal Distribution and Applications, Probability Plots, Plotting Distributions, and Fitting Distributions
- Chapter 8: Sampling and Sampling Distributions_ Simulation involving Central Limit Theorem
- Chapter 9: Estimation Theory and Confidence intervals_ Computing and Interpreting Confidence Intervals using Computer
- Chapter 10: Performing Hypothesis Testing _ One Sample and Two Sample Tests
- Chapter 11: ANOVA and Design of Experiment Tools _ Performing and Interpreting One, Two, and Multiple Factors Tests using Computer
- Chapter 12: Simple Regression Analysis
- Chapter 13: Multiple Regression
- Chapter 14: Regression & Modeling using MINITAB
- Chapter 15: Contingency Table Analysis using MINITAB
- Chapter 16: Nonparametric Tests using Computer
- Chapter 17: Control Chart Applications using Computer
- Chapter 18: Design of Experiments using Computer